



European
Commission

The 21th century is bioeconomy: Will Europe lead?

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Director of Bioeconomy – DG RTD
Brussels, 17 March 2016

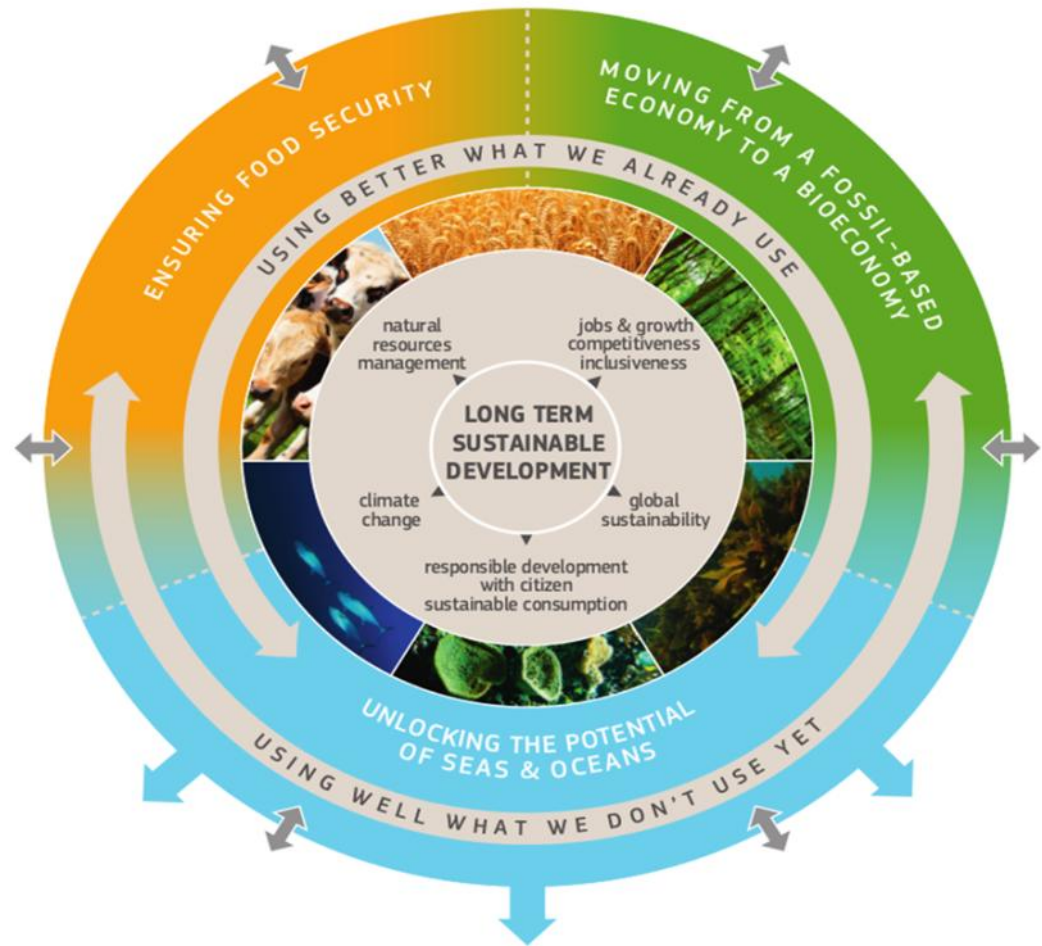


1. What is bioeconomy?
2. EU context
3. Economic opportunity
4. EU Bioeconomy policy
5. Delivering the EU bioeconomy: will Europe lead?

1. WHAT IS BIOECONOMY

" The Bioeconomy encompasses those parts of the economy that use renewable biological resources from land and sea to produce food, bio-materials, bio-energy and bio-products."

EU bioeconomy strategy, 2012



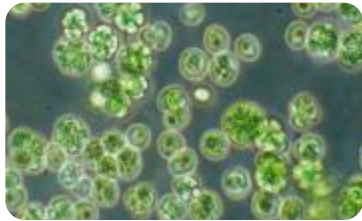
Life sciences enable the creation of new **bio-based** value chains

Primary production

Waste



Sugar beets



Algae



Wood residues



Biological waste



Fish waste

INTO



Cosmetics



Plastic bottles
Natural colourants
for candy



Dashboards



Bio-based plastics

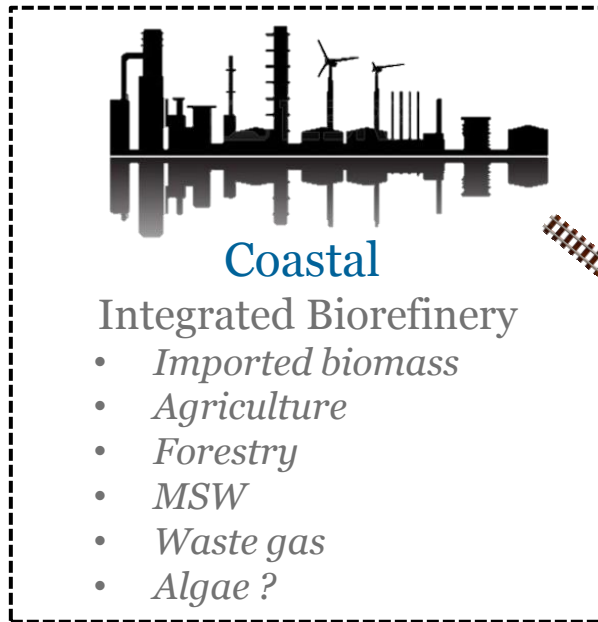


Pharmaceuticals



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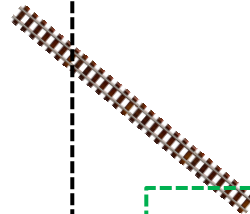
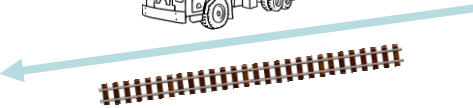
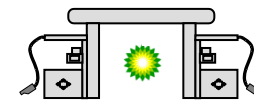
Integrated Biorefineries



MSW



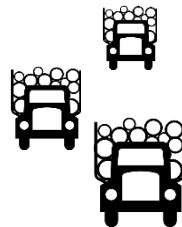
Urban



Biomass conversion and/or
ethanol / biodiesel plant

Rural

Logging/forest
residues



Farm cooperative



Neighbouring
farms



2. EU CONTEXT

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows
ReSOLVE levers: regenerate, virtualise, exchange

Bioeconomy

Renewables    Finite materials

Regenerate Substitute materials Virtualise Restore

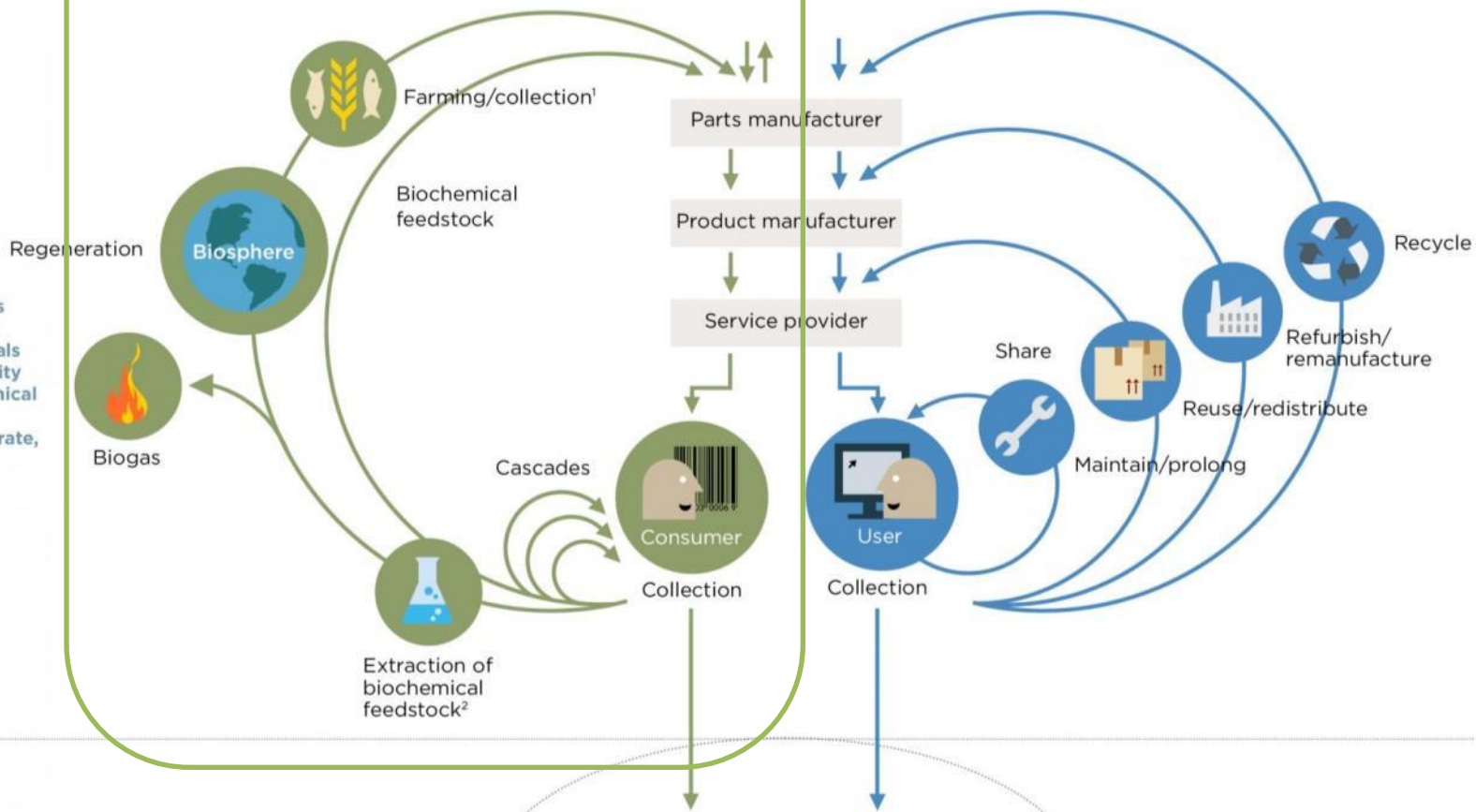
Renewables flow management

Stock management

PRINCIPLE

2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles
ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities
All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing
2. Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

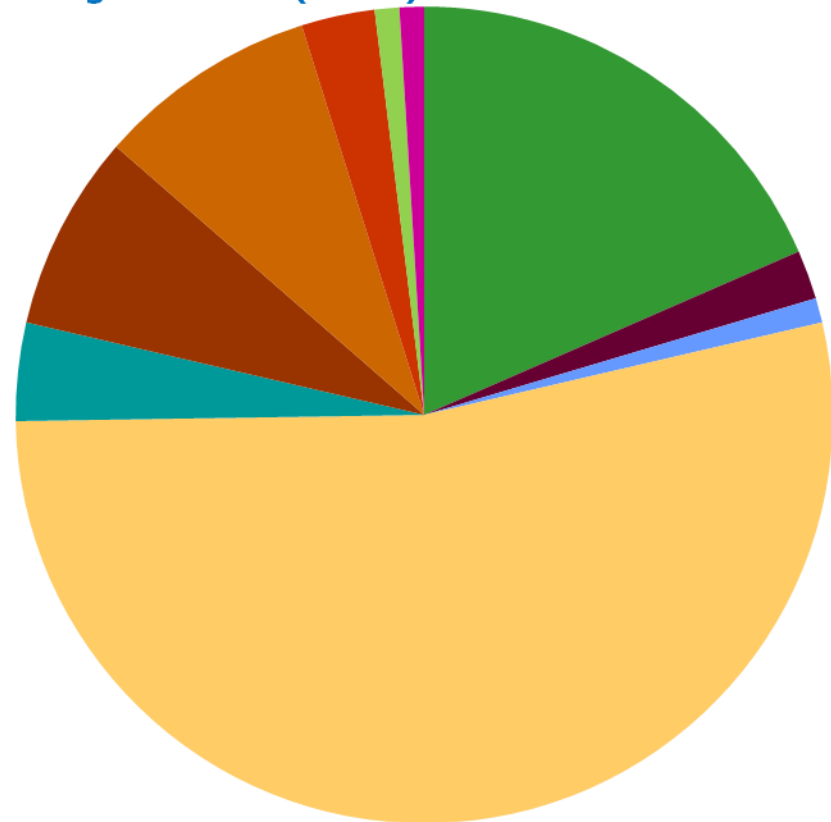
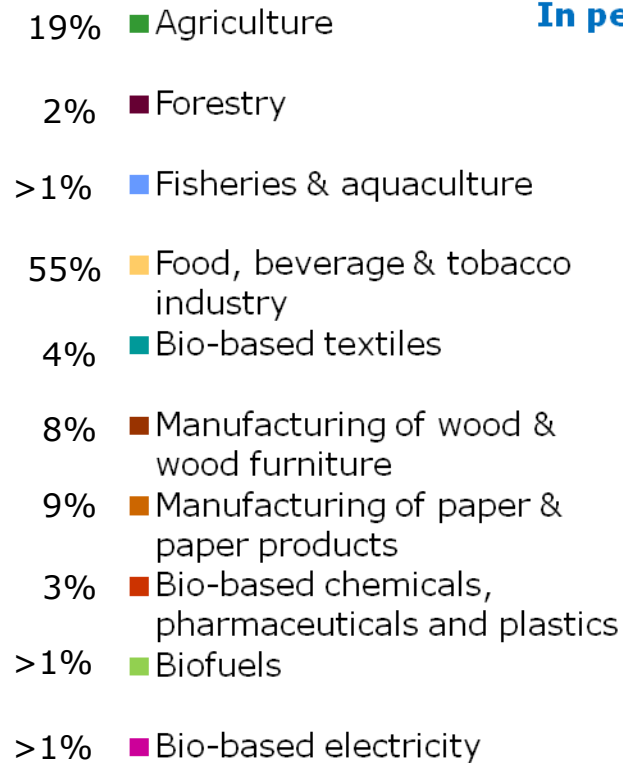
COP21: The role of bioeconomy

- Deep de-carbonisation not possible without the bio-economy:
 - Replacement of fossil resources for energy, fuels, chemicals, materials (plastics) by sustainably produced biomass – without compromising food security
 - Biomass production (agriculture) is major source of GHG emissions (mainly ruminants; fertilizer production) but also possible sink of CO₂ (forestry, soils, CCU)
 - Major innovations needed to address deep de-carbonisation in bioeconomy
- Energy Union Research, Innovation and Competitiveness Strategy (EURICS)

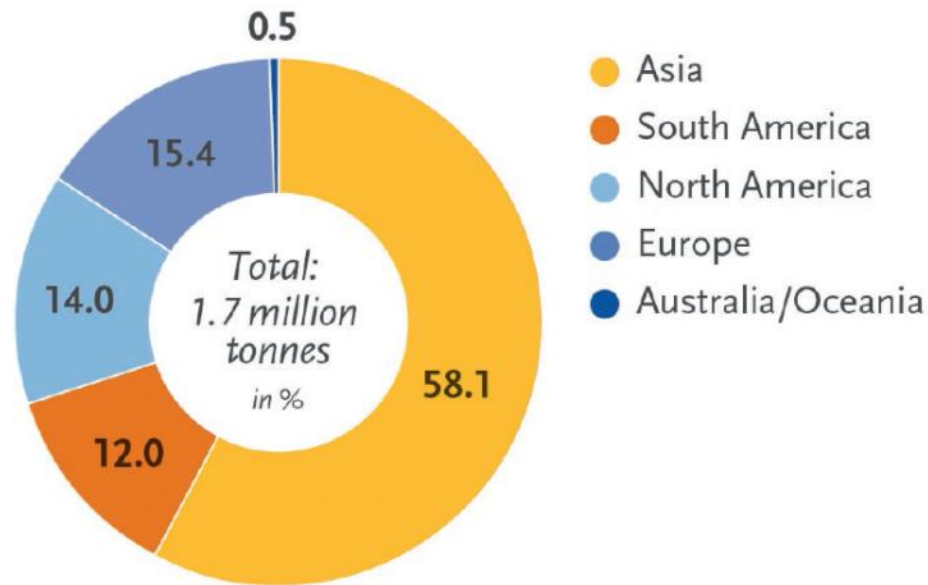
3. THE EU'S ECONOMIC OPPORTUNITY

Bioeconomy is an important industrial sector for Europe

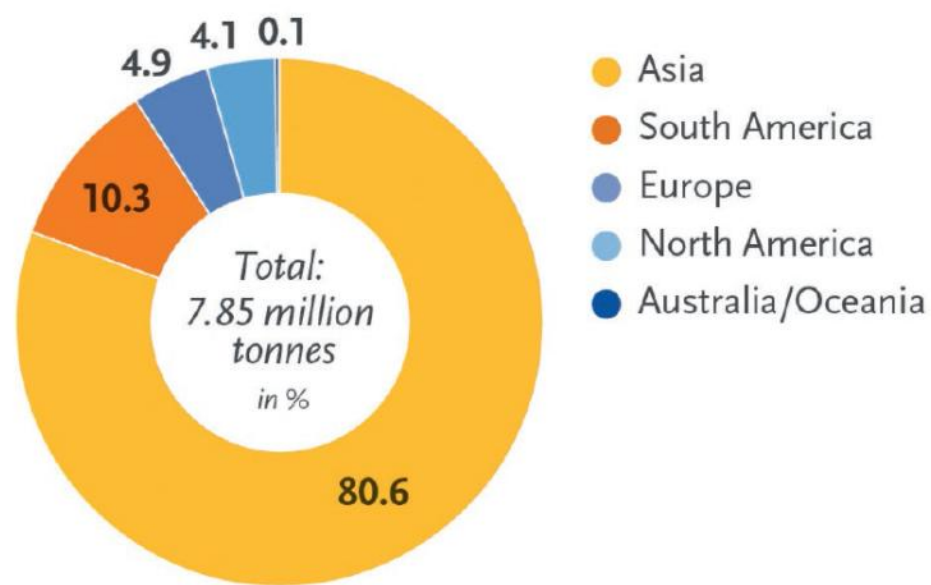
Turnover in the EU-28 by the bioeconomy sector
In percentage of value (2013)



Global production capacities of bioplastics in 2014 (by region)



Global production capacities of bioplastics in 2019 (by region)



Europe needs to **act to remain competitive for industrial production and attract **investment** in the bioeconomy**

4. EU BIOECONOMY POLICY

EU Bioeconomy Action Plan

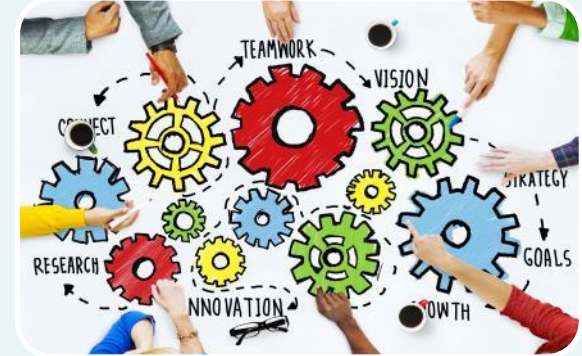
Investment in R&I



Policy interaction & stakeholder engagement



Enhancement of markets and competitiveness in bioeconomy



- Horizon 2020
 - 3.8 bn €
- Increase multi-disciplinary & cross-sectoral R&I
- Smart Specialisation
- EFSI

- Bioeconomy Panel
- Bioeconomy observatory
- EU Policy coherence
- Development of regional and national bioeconomy strategies
- International cooperation

- Sustainable intensification of primary production
- Expansion of new markets
- Increase EU competitiveness
- BBI JU
 - 3.5 bn €



INVESTMENT: €3,7bn BioBased Industries Public-Private partnership 2014-2020

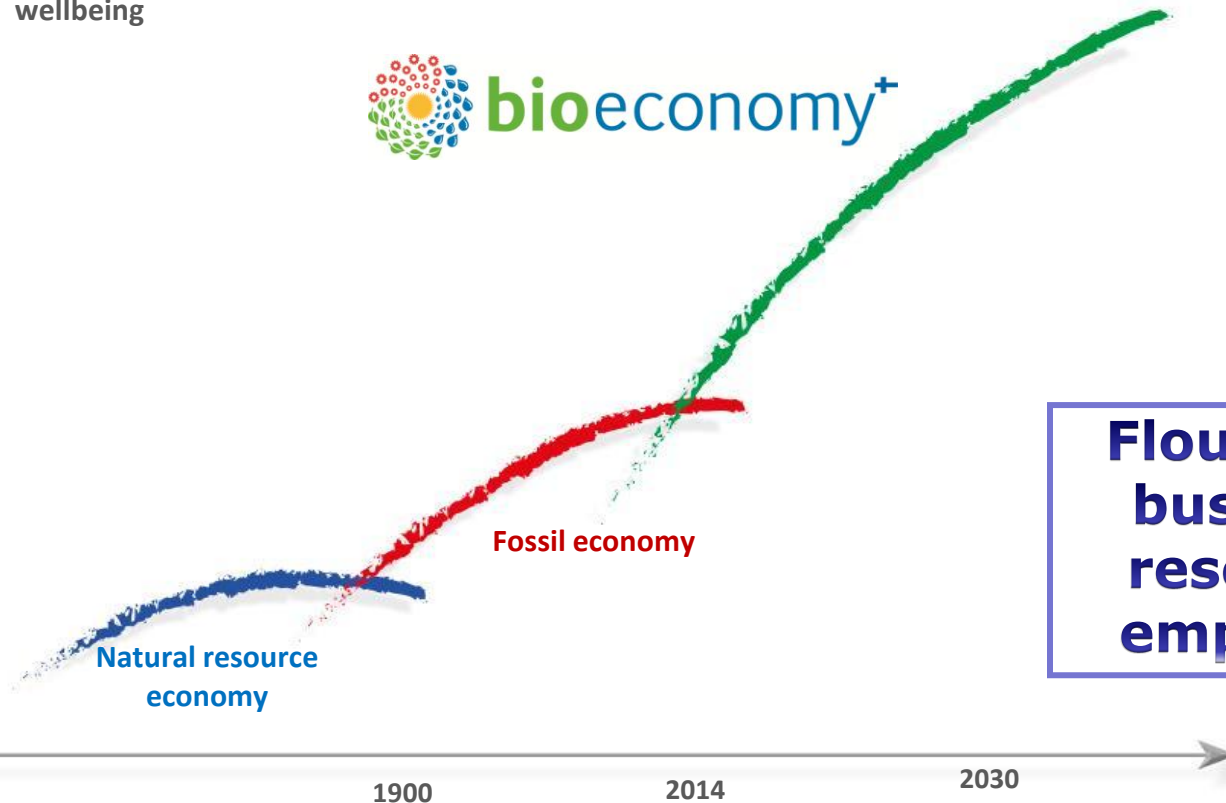
- €975 million of EU funds (Horizon 2020), leveraging €2.7 billion of private investments
- Value Chains: Forest, Woody, Agri, Municipal, Energy, Marine
- Demonstrators, breakthrough research, Flagships

5. DELIVER THE EU BIOECONOMY: WILL EUROPE LEAD?

GDP and
wellbeing

Sustainable
development

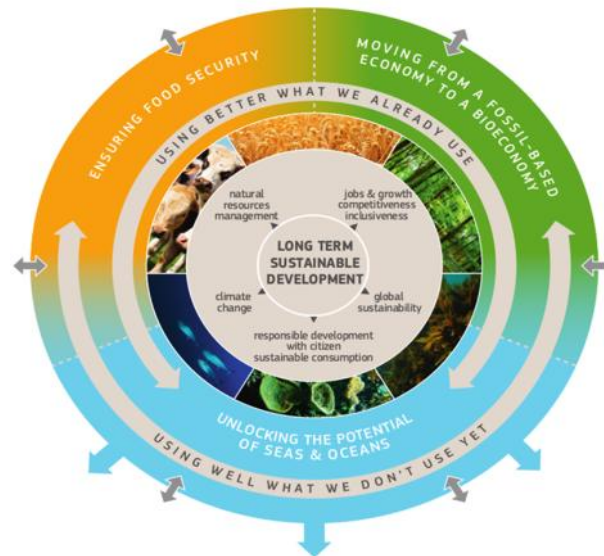
Non-fossil,
post-petroleum
society



**Flourish local
businesses,
resources &
employment**

Source: Finnish Bioeconomy Strategy, 2014

Thank you for your attention!



For more information:

www.ec.europa.eu/research/bioeconomy